

=> file reg

FILE 'REGISTRY' ENTERED AT 12:44:28 ON 08 JUL 2005
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FILE 'LREGISTRY' ENTERED AT 12:24:37 ON 08 JUL 2005

L1 STR
L2 STR

FILE 'REGISTRY' ENTERED AT 12:31:04 ON 08 JUL 2005

L3 SCR 2043
L4 0 S L1 AND L2 AND L3
L5 50 S L1 AND L3
L6 1 S L2 AND L3
L7 20 S L2 AND L3 FUL
SAV L7 THO042/A
L8 0 S L1 AND L2 AND L3 SSS SAM SUB=L7
L9 5 S L1 AND L2 AND L3 SSS FUL SUB=L7
SAV L9 THO042A/A

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L11 0 S L7

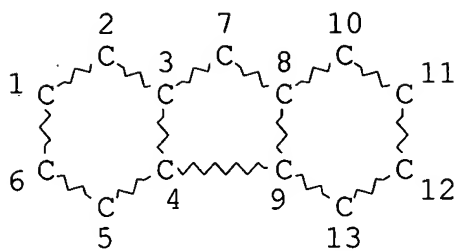
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L12 4 S L9
L13 11 S L7
L14 4 S L12 AND L13
L15 4 S L12 OR L14
L16 7 S L13 NOT L15

FILE 'REGISTRY' ENTERED AT 12:44:28 ON 08 JUL 2005

=> d l9 que stat

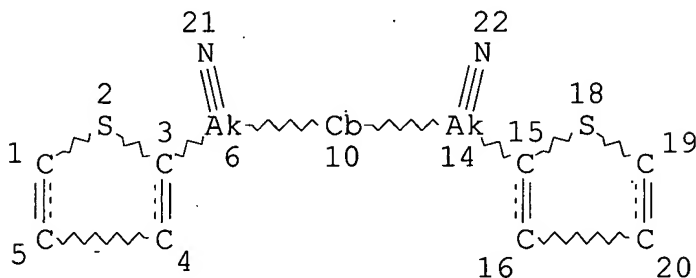
L1 STR



NODE ATTRIBUTES:
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
 L2 STR



NODE ATTRIBUTES:
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 GGCAT IS UNS AT 6
 GGCAT IS UNS AT 10
 GGCAT IS UNS AT 14
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE
 L3 SCR 2043
 L7 20 SEA FILE=REGISTRY SSS FUL L2 AND L3
 L9 5 SEA FILE=REGISTRY SUB=L7 SSS FUL L1 AND L2 AND L3

100.0% PROCESSED 6 ITERATIONS
 SEARCH TIME: 00.00.01

5 ANSWERS

=> file zcaplus

FILE 'ZCAPLUS' ENTERED AT 12:44:56 ON 08 JUL 2005

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=> d 115 1-4 all hitstr

L15 ANSWER 1 OF 4 ZCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:458883 ZCAPLUS
DN 141:174544
ED Entered STN: 08 Jun 2004
TI Synthesis, characterization, and electroluminescence of new
conjugated polyfluorene derivatives containing various dyes as
comonomers
AU Cho, Nam Sung; Hwang, Do-Hoon; Jung, Byung-Jun; Lim, Eunhee; Lee,
Jaemin; Shim, Hong-Ku
CS Center for Advanced Functional Polymers, Department of Chemistry and
School of Molecular Science (BK21), Korea Advanced Institute of
Science and Technology, Daejon, 305-701, S. Korea
SO Macromolecules (2004), 37(14), 5265-5273
CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English
CC 35-5 (Chemistry of Synthetic High Polymers)
AB Four new fluorene-based alternating polymers (PFR1-S, PFR2-S,
PFR3-S, and PFR4-S) contg. different comonomers, i.e.,
2,5-bis{2-(4'-bromophenyl)-1-cyanovinyl}-2-(2'-ethylhexyloxy)-5-
methoxybenzene (R1), 2,5-bis{2-(4'-bromophenyl)-2-cyanovinyl}-2-(2'-
ethylhexyloxy)-5-methoxybenzene (R2), 2,5-bis{2-(4'-bromothienyl)-1-
cyanovinyl}-2-(2'-ethylhexyloxy)-5-methoxybenzene (R3), and
2,5-bis{2-(4'-bromothienyl)-2-cyanovinyl}-2-(2'-ethylhexyloxy)-5-
methoxybenzene (R4), were designed, synthesized, and characterized.
These polymers were thermally stable and readily sol. in common org.
solvents. Single layer LED devices fabricated from these polymers
emitted bluish green to pure red light. The color of the light
emitted by the homopolymer, poly(9,9-dioctylfluorene-2,7-diyl)
(PDOF), can be tuned by incorporating R1, R2, R3, and R4 comonomers,
which have narrower band gaps. The absorption and emission maxima
of the copolymers varied according to the position of the cyano
group in the vinylene unit (.alpha.- or .beta.-position) and the
type of incorporated arom. group (thiophene or phenylene). Notably,

PFR4-S, prepd. from R4 and 2,7-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-9,9'-dioctylfluorene, showed pure red emission (CIE coordinate values $x, y = 0.66$ and 0.33 , resp.) that is almost identical to the std. red ($0.66, 0.34$) demanded by the National Television System Committee. PFR3-S also exhibited pure red emission (chromaticity values $x, y = 0.63$ and 0.38 , resp.), and its max. luminance and max. external quantum efficiency were approx. 3100 cd/m^2 at 6 V and 0.46% at 4 V , resp.

- ST conjugated alternating polymer fluorene deriv dye comonomer
- IT Polymerization
 - (alternating; of dioctylfluorene deriv. with narrow band gap dye comonomers)
- IT Polymers, preparation
 - (conjugated; synthesis, characterization, and electroluminescence of conjugated polyfluorene derivs. contg. various dyes as comonomers)
- IT HOMO (molecular orbital)
 - (energy level; of conjugated polyfluorene derivs. contg. various dyes as comonomers)
- IT Band gap
- Cyclic voltammetry
- IR spectra
- Luminescence
- Luminescence, electroluminescence
- Molecular weight
- Polydispersity
- Thermal stability
- UV and visible spectra
 - (of conjugated polyfluorene derivs. contg. various dyes as comonomers)
- IT Electroluminescent devices
 - (synthesis, characterization, and electroluminescence of conjugated polyfluorene derivs. contg. various dyes as comonomers)
- IT 71637-37-1P 146370-51-6P 146370-52-7P 203251-22-3P
 213749-91-8P 245731-58-2P
 (intermediate; in synthesis of various dye comonomers for prepn. of conjugated fluorene-based alternating polymers)
- IT 196207-58-6P 244282-31-3P 500206-28-0P 733023-87-5P
 733023-89-7P
 (monomer; for prepn. of conjugated fluorene-based alternating polymers)
- IT 76347-13-2 198964-46-4
 (starting material; in prepn. of monomer for synthesis of conjugated fluorene-based alternating polymers)
- IT 128-08-5, N-Bromosuccinimide 150-76-5, 4-Methoxyphenol 917-61-3,
 Sodium cyanate 18908-66-2, 2-Ethylhexyl bromide 20893-30-5,
 2-Thiopheneacetonitrile

(starting material; in synthesis of various dye comonomers for
prepn. of conjugated fluorene-based alternating polymers)

IT 733023-99-9P 733024-01-6P 733024-03-8P 733024-06-1P

733024-09-4P 733024-11-8P 733024-14-1P

733024-16-3P

(synthesis, characterization, and electroluminescence of
conjugated polyfluorene derivs. contg. various dyes as
comonomers)

IT 195456-48-5P, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 198964-76-0P

(synthesis, characterization, and electroluminescence of new
conjugated polyfluorene derivs. contg. various dyes as
comonomers)

RE.CNT 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Ahn, T; Macromol Chem Phys 2001, V202, P3180 ZCAPLUS
- (2) Alam, M; Chem Mater 2002, V14, P4775 ZCAPLUS
- (3) Asawapirom, U; Macromol Rapid Commun 2001, V22, P746 ZCAPLUS
- (4) Barbarella, G; J Am Chem Soc 2000, V122, P11971 ZCAPLUS
- (5) Beaupre, S; Adv Funct Mater 2002, V12, P192 ZCAPLUS
- (6) Burroughes, J; Nature (London) 1990, V347, P539 ZCAPLUS
- (7) Chen, Z; Macromolecules 2000, V33, P9015 ZCAPLUS
- (8) Cho, H; Macromolecules 2003, V36, P6704 ZCAPLUS
- (9) Cho, N; Macromolecules 2002, V35, P1224 ZCAPLUS
- (10) Chu, H; Synth Met 1999, V101, P216 ZCAPLUS
- (11) de Leeuw, D; Synth Met 1997, V87, P53 ZCAPLUS
- (12) Ego, C; J Am Chem Soc 2003, V125, P437 ZCAPLUS
- (13) Friend, R; Nature (London) 1999, V397, P121 ZCAPLUS
- (14) Fukuda, M; J Polym Sci Part A: Polym Chem 1993, V31, P2465 ZCAPLUS
- (15) Gill, R; Chem Mater 1996, V8, P1341 ZCAPLUS
- (16) Gunter, W; Color Science: Concepts and Methods, Quantitative Data and
Formulae, 2nd ed 1982
- (17) Gustafsson, G; Nature (London) 1992, V357, P477 ZCAPLUS
- (18) Heeger, A; Solid State Commun 1998, V107, P673 ZCAPLUS
- (19) Herguth, P; Macromolecules 2002, V35, P6094 ZCAPLUS
- (20) Hohloch, M; Chem Mater 1998, V10, P1327 ZCAPLUS
- (21) Hou, Q; J Mater Chem 2002, V12, P2887 ZCAPLUS
- (22) Hwang, D; J Mater Chem 2003, V13, P1540 ZCAPLUS
- (23) Inbasekaran, M; US 5777070 1997 ZCAPLUS
- (24) Jacob, J; Macromolecules 2003, V36, P8240 ZCAPLUS
- (25) Janietz, S; Appl Phys Lett 1998, V73, P6217
- (26) Jung, B; Macromolecules 2002, V35, P2287
- (27) Klarner, G; Adv Mater 1998, V10, P993
- (28) Klarner, G; Adv Mater 1999, V11, P115
- (29) Ko, S; Macromolecules 2002, V35, P6217 ZCAPLUS
- (30) Kong, X; Macromolecules 2003, V36, P8992 ZCAPLUS
- (31) Kroon, J; Thin Solid Films 2002, V403-404, P223 ZCAPLUS
- (32) Lee, J; Chem Commun 2003, V22, P2836
- (33) Lee, J; ETRI J 2002, V24, P409

- (34) Lee, J; SPIE Int Soc Opt Eng 1999, V3623, P2 ZCAPLUS
- (35) Liao, L; J Polym Sci Part A: Polym Chem 2003, V41, P3149 ZCAPLUS
- (36) Lim, E; Macromolecules 2003, V36, P4288 ZCAPLUS
- (37) List, E; Adv Mater 2002, V14, P374 ZCAPLUS
- (38) Liu, M; Macromolecules 2002, V35, P3532 ZCAPLUS
- (39) Lupton, J; Appl Phys Lett 2002, V80, P4489 ZCAPLUS
- (40) Milkroyannidis, J; Macromolecules 2003, V36, P9295
- (41) Miteva, T; Adv Mater 2001, V13, P565
- (42) Miyaura, N; Chem, Rev 1995, V95, P2457 ZCAPLUS
- (43) Niu, Y; Appl Phys Lett 2003, V82, P2163 ZCAPLUS
- (44) Oelkrug, D; J Phys Chem B 1998, V102, P1902 ZCAPLUS
- (45) Pei, Q; J Am Chem Soc 1996, V118, P7416
- (46) Peng, Q; Macromolecules 2004, V37, P260 ZCAPLUS
- (47) Ranger, M; Macromolecules 1997, V30, P7686 ZCAPLUS
- (48) Ranger, M; Macromolecules 1999, V32, P3306 ZCAPLUS
- (49) Romaner, L; Adv Funct Mater 2003, V13, P597 ZCAPLUS
- (50) Shu, C; Macromolecules 2003, V36, P6698 ZCAPLUS
- (51) Virgili, T; Adv Mater 2000, V10, P58
- (52) Wu, F; Chem Mater 2003, V15, P269 ZCAPLUS
- (53) Yang, W; J Mater Chem 2003, V13, P1351 ZCAPLUS

IT 733024-09-4P 733024-14-1P

(synthesis, characterization, and electroluminescence of
conjugated polyfluorene derivs. contg. various dyes as
comonomers)

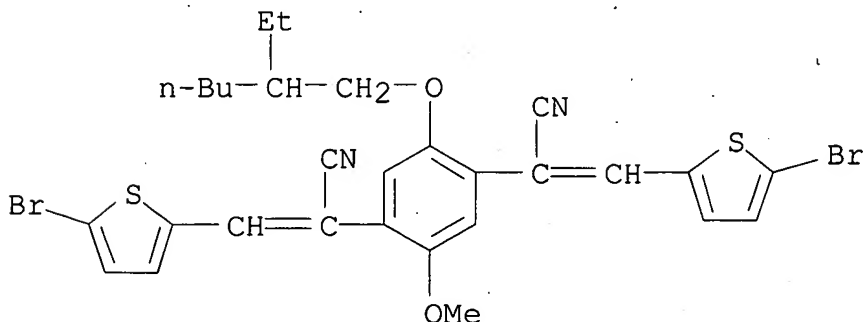
RN 733024-09-4 ZCAPLUS

CN 1,4-Benzenediacetonitrile, .alpha.,.alpha.'-bis[(5-bromo-2-
thienyl)methylene]-2-[(2-ethylhexyl)oxy]-5-methoxy-, polymer with
2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-
dioxaborolane] (9CI) (CA INDEX NAME)

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CRN 500206-28-0

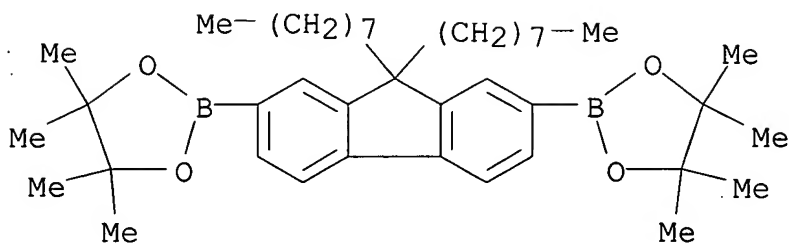
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CM 2

CRN 196207-58-6

CMF C41 H64 B2 O4



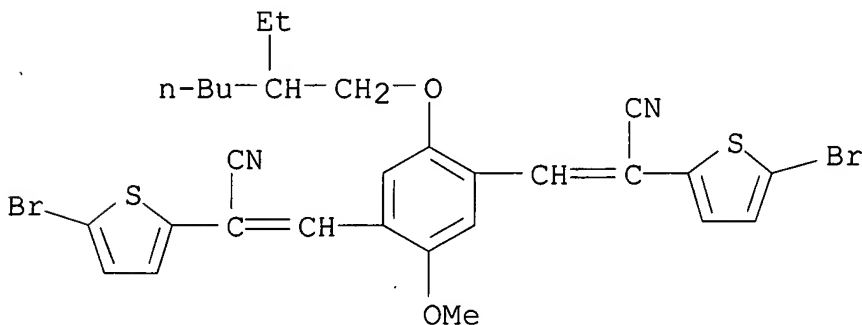
RN 733024-14-1 ZCAPLUS

CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]dimethyldiyne]bis[5-bromo-, polymer with 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 733023-87-5

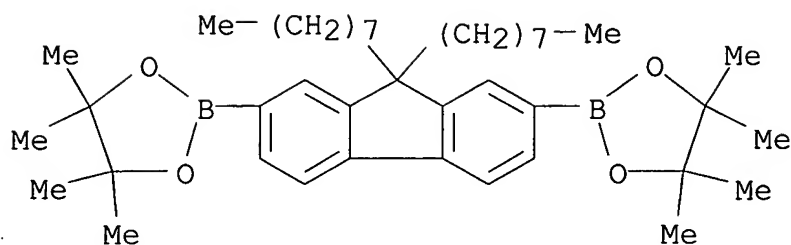
CMF C29 H28 Br2 N2 O2 S2



CM 2

CRN 196207-58-6

CMF C41 H64 B2 O4



- L15 ANSWER 2 OF 4 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:861097 ZCAPLUS
 DN 140:60082
 ED Entered STN: 04 Nov 2003
 TI Optical and Electrical Properties of π -Conjugated Polymers Based on Electron-Rich 3,6-Dimethoxy-9,9-dihexylfluorene Unit
 AU Beaupre, Serge; Leclerc, Mario
 CS Canada Research Chair in Polymer Chemistry, Departement de Chimie, Universite Laval, Quebec City, QC, G1K 7P4, Can.
 SO Macromolecules (2003), 36(24), 8986-8991
 CODEN: MAMOBX; ISSN: 0024-9297
 PB American Chemical Society
 DT Journal
 LA English
 CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36
 AB A new family of π -conjugated polymers has been developed using 3,6-dimethoxy-9,9-dihexylfluorene as an electron-rich unit. These electroactive and photoactive polymers have been prep'd. from nickel(0)-mediated coupling or by palladium-catalyzed Suzuki coupling. These new 3,6-dimethoxy-9,9-dihexylfluorene-based copolymers have demonstrated emission spanning the entire visible spectrum. Moreover, all of these polymers show reversible electroactivity upon redn. and oxidn., and as expected, the presence of methoxy groups onto the fluorene moiety increases the ionization potential of the resulting copolymers by about 0.2 eV when compared with some 9,9-dihexylfluorene-based copolymers. The redn. of the energy barrier for the injection of holes in related polymeric light-emitting devices should contribute to the enhancement of their performances.
 ST dimethoxydihexylfluorene conjugated polymer synthesis thermal optical electrochem property
 IT UV absorption
 (UV-visible; optical and elec. properties of π -conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
 IT Polymers, preparation

(conjugated; optical and elec. properties of .pi.-conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)

- IT Band gap
Cyclic voltammetry
Fluorescence
Glass transition temperature
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Oxidation potential
Reduction potential
Thermal stability
(optical and elec. properties of .pi.-conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT Conducting polymers
(polythiophenes, fluorene-contg.; optical and elec. properties of .pi.-conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT 13235-07-9, 3,6-Dimethoxy-9-fluorenone
(in prepn. of dimethoxyfluorene)
- IT 111-25-1, 1-Bromohexane
(in reaction with dimethoxyfluorene)
- IT 637771-41-6P 637771-44-9P
(intermediate; prepn. of, and in bromination reaction)
- IT 96617-41-3P, 3,6-Dimethoxyfluorene
(intermediate; prepn. of, and in reaction with bromohexane)
- IT 637771-45-0P
(monomer; prepn. of by bromination, and in synthesis of .pi.-conjugated polymers)
- IT 637771-42-7P
(monomer; prepn. of by bromination, in reaction with dioxaborolane deriv., or in synthesis of .pi.-conjugated polymers)
- IT 637771-43-8P
(monomer; prepn. of, and in synthesis of .pi.-conjugated polymers)
- IT 637771-46-1P 637771-47-2P 637771-48-3P 637771-49-4P
637771-50-7P 637771-51-8P 637771-52-9P 637771-53-0P
637771-54-1P 637771-55-2P **637771-56-3P**
637771-57-4P
(optical and elec. properties of .pi.-conjugated polymers based on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)
- IT 20893-30-5, 2-Thiopheneacetonitrile
(reaction with bis(octyloxy)-1,4-benzenedicarboxaldehyde in prepn. of monomer)
- IT 61676-62-8, 2-Isopropoxy-4,4,5,5-tetramethyl-1,3,2-dioxaborolane
(reaction with dibromofluorene deriv. in prepn. of monomer)

IT 123440-34-6

(reaction with thiopheneacetonitrile in prepn. of monomer)

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Barbarella, G; Adv Mater 1999, V11, P1375 ZCAPLUS
- (2) Beaupre, S; Adv Funct Mater 2002, V12, P192 ZCAPLUS
- (3) Beaupre, S; Macromol Rapid Commun 2000, V21, P1013 ZCAPLUS
- (4) Bernius, H; J Mater Sci 2000, V11, P111
- (5) Braun, D; Appl Phys Lett 1991, V58, P1982 ZCAPLUS
- (6) Brown, A; Appl Phys Lett 1992, V7, P2
- (7) Bull, J; J Chem Soc, Perkin Trans 1 2000, P4476 ZCAPLUS
- (8) Burroughes, J; Nature (London) 1990, V347, P539 ZCAPLUS
- (9) Charas, A; Synth Met 2001, V122, P23 ZCAPLUS
- (10) Chuang, C; J Am Chem Soc 1985, V107, P4238 ZCAPLUS
- (11) Coulson, D; Inorg Synth 1972, V13, P121
- (12) Dehmlow, E; Synth Commun 1996, V26, P1467 ZCAPLUS
- (13) Donat-Bouillud, A; Chem Mater 1997, V9, P2815 ZCAPLUS
- (14) Donat-Bouillud, A; Chem Mater 2000, V12, P1931 ZCAPLUS
- (15) Eaton, D; Pure Appl Chem 1988, V60, P1107 ZCAPLUS
- (16) Grem, G; Chem Mater 1995, V7, P2 ZCAPLUS
- (17) Janietz, S; Appl Phys Lett 1998, V73, P2453 ZCAPLUS
- (18) Jayakannan, M; Macromolecules 2001, V34, P5386 ZCAPLUS
- (19) Klaerner, G; Macromolecules 1998, V31, P2007 ZCAPLUS
- (20) Kraft, A; Angew Chem, Int Ed 1998, V37, P402
- (21) Leclerc, M; J Polym Sci, Part A: Polym Chem 2001, V39, P2867 ZCAPLUS
- (22) Lee, J; Synth Met 1999, V102, P1087 ZCAPLUS
- (23) Levesque, I; Synth Met 2001, V122, P79 ZCAPLUS
- (24) Liu, B; Chem Mater 2001, V13, P1984 ZCAPLUS
- (25) Meyers, A; J Org Chem 1978, V43, P1372 ZCAPLUS
- (26) Morin, J; Appl Phys Lett 2002, V80, P341 ZCAPLUS
- (27) Morin, J; Macromolecules 2001, V34, P4680 ZCAPLUS
- (28) Ohmori, Y; Jpn J Appl Phys 1991, V20, P1941 ZCAPLUS
- (29) Patney, H; Tetrahedron Lett 1991, V32, P2259 ZCAPLUS
- (30) Pei, Q; J Am Chem Soc 1996, V118, P7416 ZCAPLUS
- (31) Pereira, E; J Chem Phys 1999, V110, P1600
- (32) Ranger, M; Can J Chem 1998, V76, P1571 ZCAPLUS
- (33) Ranger, M; Macromolecules 1997, V30, P7686 ZCAPLUS
- (34) Rault-Berthelot, J; New J Chem 1987, V11, P487 ZCAPLUS
- (35) Sarker, A; Macromolecules 2002, V35, P223 ZCAPLUS
- (36) Yang, Y; Synth Met 1994, V67, P161

IT 637771-56-3P 637771-57-4P

(optical and elec. properties of .pi.-conjugated polymers based
on electron-rich 3,6-Dimethoxy-9,9-dihexylfluorene unit)

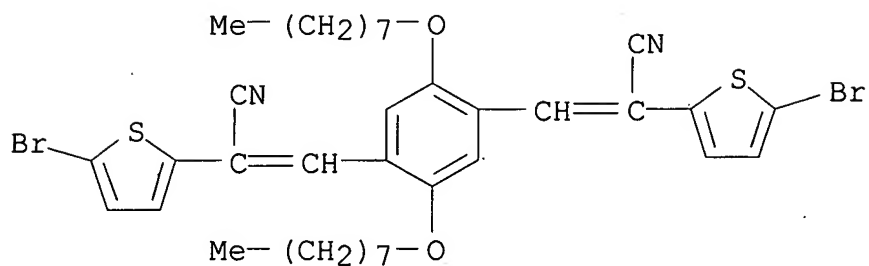
RN 637771-56-3 ZCAPLUS

CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-[[2,5-bis(octyloxy)-1,4-
phenylene]dimethylidyne]bis[5-bromo-, polymer with
2,2'-(9,9-dihexyl-3,6-dimethoxy-9H-fluorene-2,7-diyl)bis[4,4,5,5-
tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 637771-45-0

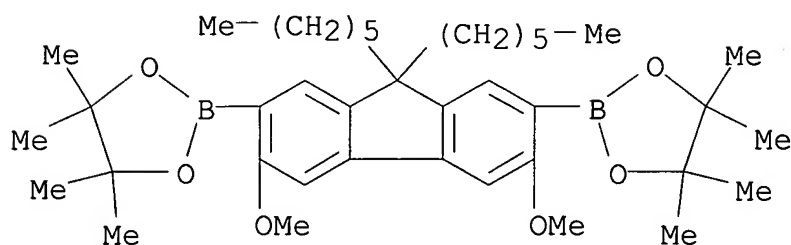
CMF C36 H42 Br2 N2 O2 S2



CM 2

CRN 637771-43-8

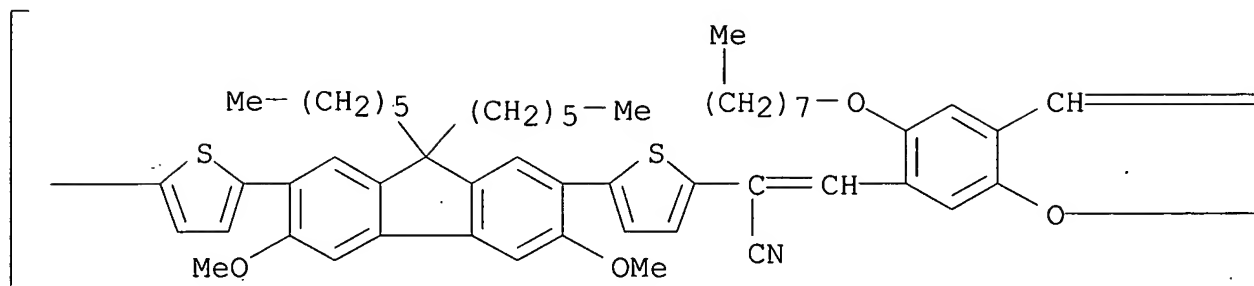
CMF C39 H60 B2 O6



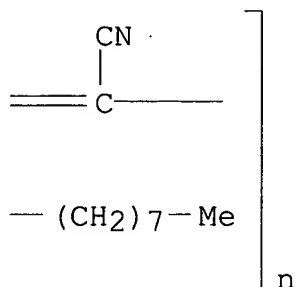
RN 637771-57-4 ZCAPLUS

CN Poly[2,5-thiophenediyl(9,9-dihexyl-3,6-dimethoxy-9H-fluorene-2,7-diyl)-2,5-thiophenediyl(1-cyano-1,2-ethenediyl)[2,5-bis(octyloxy)-1,4-phenylene](2-cyano-1,2-ethenediyl)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L15 ANSWER 3 OF 4 ZCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:154523 ZCAPLUS
DN 138:212572
ED Entered STN: 28 Feb 2003
TI Light-emitting fluorene-based copolymers, electroluminescent devices
comprising the same and method of synthesis thereof
IN Cho, Nam Sung; Hwang, Do Hoon; Shim, Hong Ku; Kim, Jong Chul
PA Iljin Diamond Co., Ltd., S. Korea; Korea Advanced Institute of
Science and Technology
SO PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C09K011-06
ICS H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 38, 76
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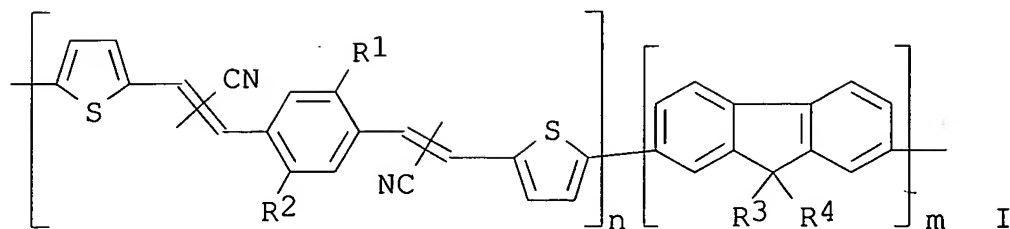
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 PI WO 2003016430 A1 20030227 WO 2002-KR1514 200208
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 NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
 TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM,
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 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
 BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU,
 MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
 GW, ML, MR, NE, SN, TD, TG
 KR 2003015594 A 20030225 KR 2001-49386 200108
 16
 EP 1427793 A1 20040616 EP 2002-755961 200208
 08
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
 JP 2005500429 T2 20050106 JP 2003-521741 200208
 08
 US 2004166366 A1 20040826 US 2004-780042 200402
 17
 PRAI KR 2001-49386 A 20010816
 WO 2002-KR1514 W 20020808

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003016430	ICM	C09K011-06
	ICS	H05B033-14
WO 2003016430	ECLA	C08G061/02; C08G061/12D1F; C09K011/06; H01L051/30D6; H01L051/30D2B
JP 2005500429	FTERM	3K007/AB04; 3K007/AB06; 3K007/AB14; 3K007/DB03; 4J032/BA04; 4J032/BA25; 4J032/BB06; 4J032/BB09; 4J032/BC03; 4J032/BD07
US 2004166366	NCL	428/690.000; 428/917.000; 313/504.000; 313/506.000; 257/040.000; 528/380.000
	ECLA	C08G061/02; C08G061/12D1F; C09K011/06; H01L051/30D2B; H01L051/30D6

GI



AB Light-emitting copolymers are described by the general formula I (R1 and R2 = silyl groups, alkyl groups, or alkoxy groups; and R3 and R4 = alkyl groups; n/m = 17.5/82.5 - 1.4/98.6). Methods of prep. the polymers are described which entail reacting appropriate brominated monomers; selected monomers are also described. Electroluminescent devices are described which employ the polymers in the light-emitting layers.

ST luminescent polymer fluorene deriv thienyl cyano vinyl compd monomer; electroluminescent device luminescent polymer

IT Electroluminescent devices
Luminescent substances

(light-emitting fluorene-based copolymers and their prodn. and electroluminescent devices using them)

IT 50-00-0, Formaldehyde, reactions 143-33-9, Sodium cyanide 150-76-5, 4-Methoxyphenol 4701-17-1, 5-Bromothiophene-2-carbaldehyde 16433-88-8, 2,7-Dibromofluorene 18908-66-2, 2-Ethylhexyl bromide **500206-29-1**

(light-emitting fluorene-based copolymers and their prodn. and electroluminescent devices using them)

IT 146370-51-6P 146370-52-7P, 1,4-Bis(chloromethyl)-5-(2-ethylhexyloxy)-2-methoxybenzene 188200-93-3P 213749-91-8P 500206-28-0P

(light-emitting fluorene-based copolymers and their prodn. and electroluminescent devices using them)

RE.CNT 3. THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Idemitsu Kosan Company Limited; EP 0557534 A1 1993 ZCAPLUS
- (2) Kauffman; US 5037578 A 1991 ZCAPLUS
- (3) Kim; US 5876864 A 1999 ZCAPLUS

IT **500206-29-1**

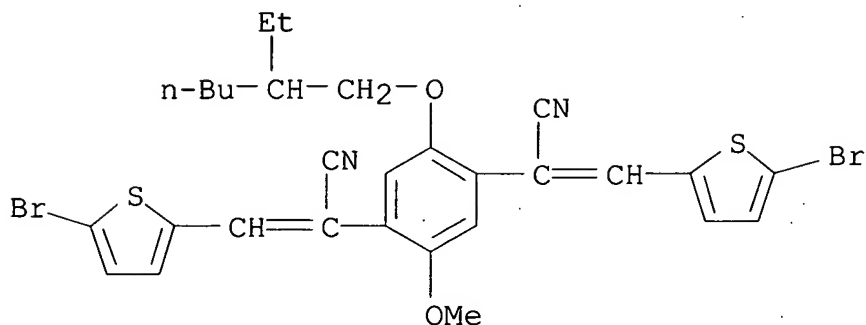
(light-emitting fluorene-based copolymers and their prodn. and electroluminescent devices using them)

RN 500206-29-1 ZCAPLUS

CN 1,4-Benzenediacetonitrile, .alpha.,.alpha.'-bis[(5-bromo-2-thienyl)methylene]-2-[(2-ethylhexyl)oxy]-5-methoxy-, polymer with 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI) (CA INDEX NAME)

CRN 500206-28-0

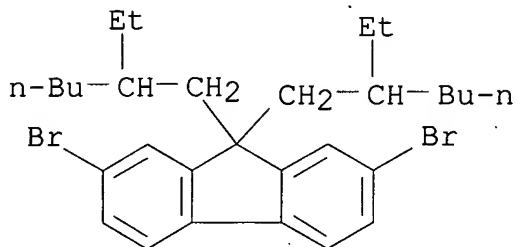
CMF C29 H28 Br2 N2 O2 S2



CM 2

CRN 188200-93-3

CMF C29 H40 Br2



L15 ANSWER 4 OF 4 ZCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:893936 ZCAPLUS

DN 139:101484

ED Entered STN: 25 Nov 2002

TI Band gap tuning of new light emitting conjugated polymers

AU Hwang, Do-Hoon; Cho, Nam Sung; Jung, Byung-Jun; Shim, Hong-Ku; Lee, Jeong-Ik; Do, Lee-Mi; Zyung, Taehyoung

CS Department of Applied Chemistry, Kumoh National University of Technology, Kumi, 730-701, S. Korea

SO Optical Materials (Amsterdam, Netherlands) (2003), 21(1-3), 199-203
CODEN: OMATET; ISSN: 0925-3467

PB Elsevier Science B.V.

DT Journal

LA English

- CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 73
- AB A series of copolymers, poly{9,9-bis(2'-ethylhexyl)fluorene-2,7-diyl-co-2,5-bis(2-thienyl-1-cyanovinyl)-1-(2'-ethylhexyl-oxy)-4-methoxybenzene-5'',5'''-diyl} has been synthesized from the monomers, 2,7-dibromo-9,9-bis(2'-ethylhexyl)fluorene and 2,5-bis(2-(5'-bromo-thienyl)-1-cyanovinyl)-1-(2''-ethylhexyloxy)-4-methoxybenzene (BTCVB) using the Ni(0) mediated polymn. The synthesized copolymers showed the absorption maxima at about 380 nm and the absorption between 425 and 600 nm increased as the fraction of the thiophene-contg. monomer (BTCVB) increased. In photoluminescence (PL), the emission maxima of the copolymers were red-shifted as the fraction of BTCVB increased, despite the similar absorption characteristics were shown in the UV-vis spectra. The copolymer contg. 15 mol% of BTCVB showed a max. PL emission at 620 nm.
- ST polyalkylfluorene prepn band gap photoluminescence cyclic voltammetry
- IT LUMO (molecular orbital)
(HOMO gap; band gap tuning of new light emitting conjugated polymers)
- IT HOMO (molecular orbital)
(LUMO gap; band gap tuning of new light emitting conjugated polymers)
- IT Band gap
Cyclic voltammetry
Light
Luminescence
Oxidation potential
(band gap tuning of new light emitting conjugated polymers)
- IT Poly(arylenealkenylenes)
(band gap tuning of new light emitting conjugated polymers)
- IT 429-42-5, Tetrabutylammonium tetrafluoroborate
(band gap tuning of new light emitting conjugated polymers).
- IT **500206-29-1P**
(band gap tuning of new light emitting conjugated polymers)
- RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
- (1) Chen, Z; Macromolecules 2000, V33, P9015 ZCAPLUS
 - (2) Demas, J; J Phys Chem 1971, V75, P991
 - (3) Grell, M; Adv Mater 1997, V9, P798 ZCAPLUS
 - (4) Hima, S; Angew Chem Int Ed 1999, V38, P2722
 - (5) Inbasekaran, M; US 5777070 1997 ZCAPLUS
 - (6) Klarner, G; Adv Mater 1998, V10, P993
 - (7) Klarner, G; Adv Mater 1999, V11, P115
 - (8) Kreyenschmidt, M; Macromolecules 1998, V31, P1099 ZCAPLUS
 - (9) Lee, J; SPIE Int Soc Opt Eng 1999, V3623, P2 ZCAPLUS
 - (10) Ohmori, Y; Jpn J Appl Phys 1991, V30, PL1941

- (11) Pei, Q; J Am Chem Soc 1996, V188, P7416
 (12) Shim, H; Adv Polym Sci 2002, V158, P193 ZCAPLUS
 (13) Yang, Y; J Appl Phys 1997, V81, P3294 ZCAPLUS
 (14) Yoshida, K; Appl Phys Lett 1996, V69, P734
 (15) Zheng, M; Macromolecules 2000, V33, P7426 ZCAPLUS

IT **500206-29-1P**

(band gap tuning of new light emitting conjugated polymers)

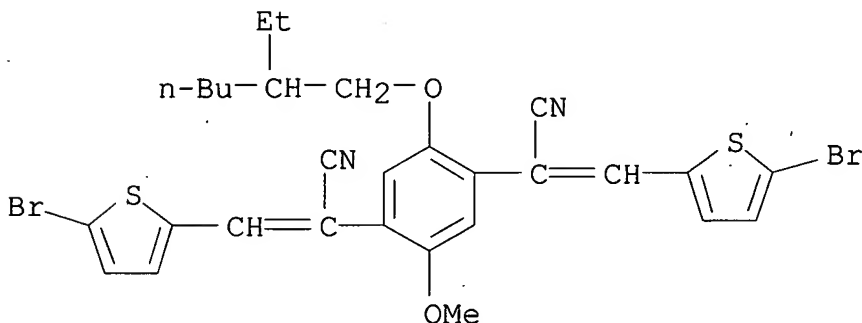
RN 500206-29-1 ZCAPLUS

CN 1,4-Benzenediacetonitrile, .alpha.,.alpha.'-bis[(5-bromo-2-thienyl)methylene]-2-[(2-ethylhexyl)oxy]-5-methoxy-, polymer with 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 500206-28-0

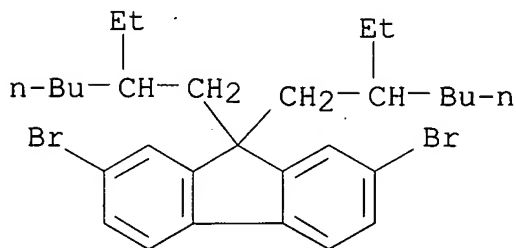
CMF C29 H28 Br2 N2 O2 S2



CM 2

CRN 188200-93-3

CMF C29 H40 Br2



=> d 116 1-7 cbib abs hitstr hitrn

L16 ANSWER 1 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN
2005:121944 Document No. 143:26958 Syntheses and optical properties of .alpha.- and .beta.-cyano-poly(p-phenylene vinylene) derivatives. Chang, Chang-Ping; Huang, Wan-Ting; Lin, Mu-Shih (Department of Applied Chemistry, National Chiao-Tung University, Hsinchu, 300, Taiwan). Journal of Polymer Research, 11(4), 257-264 (English) 2004. CODEN: JPOREP. ISSN: 1022-9760. Publisher: Kluwer Academic Publishers.

AB Two light emitting mols. with the cyano group at different positions on the vinylene i.e., 2,5-bis(2-thienyl-1-cyanovinyl)-1-(2'-ethylhexyloxy)-4-methoxybenzene (.alpha.-TPT) and 2,5-bis(2-thienyl-2-cyanovinyl)-1-(2'-ethylhexyloxy)-4-methoxybenzene (.beta.-TPT), and corresponding polymers, i.e., poly[2,5-bis(2-thienyl-1-cyanovinyl)-1-(2'-ethylhexyloxy)-4-methoxybenzene] (denoted as P1) and poly[2,5-bis(2-thienyl-2-cyanovinyl)-1-(2'-ethylhexyloxy)-4-methoxybenzene] (denoted as P2) were synthesized. .alpha.-TPT and .beta.-TPT, resp., were blended into two host polymers, poly(methyl methacrylate (PMMA) and poly(9-vinylcarbazole) (PVK), to study the optical properties of the dopants in different host polymer matrixes. Although .alpha.-TPT and .beta.-TPT have the same backbone structure, their optical properties are much different. The PL emission max. (.lambda.max) of .alpha.-TPT was found blue-shifted, compared with that of .beta.-TPT, while the PL intensity of .beta.-TPT was stronger than that of .alpha.-TPT. Conc. effect in the optical properties was found, 1 wt% of .beta.-TPT in PVK had the max. fluorescent emission. The PL max. peak wavelengths for polymer films (P1 and P2) were found red-shifted; while their PL intensities were weaker when compared with those of blends.

IT **852660-23-2P 852660-24-3P**

(syntheses and optical properties of .alpha.- and .beta.-cyano-poly(phenylene vinylene) derivs.)

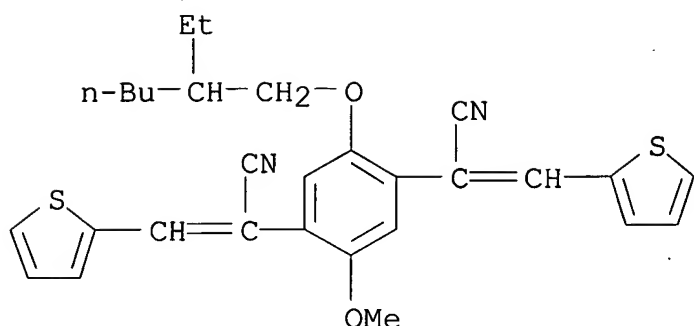
RN 852660-23-2 ZCAPLUS

CN 1,4-Benzenediacetonitrile, 2-[(2-ethylhexyl)oxy]-5-methoxy-.alpha.,.alpha.'-bis(2-thienylmethylene)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 852660-21-0

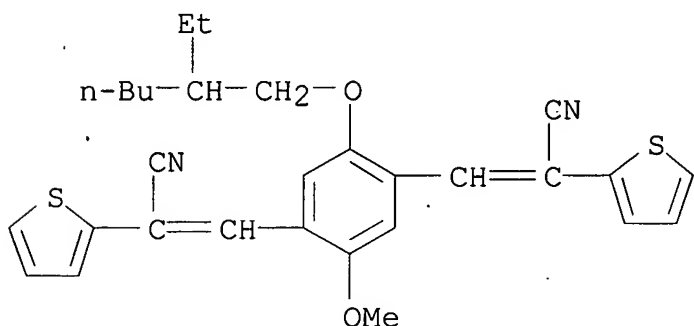
CMF C29 H30 N2 O2 S2



RN 852660-24-3 ZCAPLUS
CN INDEX NAME NOT YET ASSIGNED

CM 1

CRN 852660-22-1
CMF C29 H30 N2 O2 S2



IT **852660-23-2P 852660-24-3P**
(syntheses and optical properties of .alpha.- and
.beta.-cyano-poly(phenylene vinylene) derivs.)

L16 ANSWER 2 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN
2004:594691 Document No. 141:296354 Novel p-phenylene-vinylene-
dithienylene type copolymer: potential red-emitting materials. Xue,
Cuihua; Luo, Fen-Tair (Institute of Chemistry, Academic Sinica,
Taipei, 11529, Taiwan). Synthetic Metals, 145(1), 67-73 (English)
2004. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier B.V..
AB The p-phenylene-vinylene-dithienylene type copolymers (PPV-DT) with
or without cyano group on the vinylene moiety were synthesized by
Wittig-Horner-Emmons reaction and palladium-catalyzed homo-coupling
reaction. The photophys. and optoelectronic properties of these

copolymers as potential red-emitting materials were discussed.

IT **760998-60-5P**

(novel p-phenylene-vinylene-dithienylene type copolymers as potential red-emitting materials)

RN 760998-60-5 ZCAPLUS

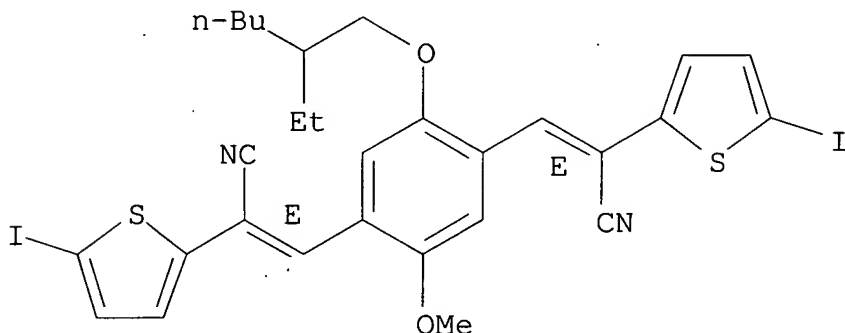
CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]dimethyldiyne]bis[5-iodo-, (.alpha.E,.alpha.'E)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 760998-59-2

CMF C29 H28 I2 N2 O2 S2

Double bond geometry as shown.



IT **760998-60-5P**

(novel p-phenylene-vinylene-dithienylene type copolymers as potential red-emitting materials)

L16 ANSWER 3 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN

2002:839719 Document No. 138:173254 Conjugated polymers based on new thienylene - PPV derivatives for solar cell applications. Wagner, Pawel; Aubert, Pierre-Henri; Lutsen, Laurence; Vanderzande, Dirk (Research Group Organic and Polymeric Chemistry, Limburg Universitair Centrum, Diepenbeek, B-3590, Belg.). Electrochemistry Communications, 4(11), 912-916 (English) 2002. CODEN: ECCMF9. ISSN: 1388-2481. Publisher: Elsevier Science B.V..

AB Two .pi.-conjugated monomers based on bis-(1-cyano-2-thienyl-vinylene)phenylene derivs. were synthesized by Knoevenagel condensation. Both monomers can form electroactive polymers upon electrochem. oxidn. The withdrawing effect due to the cyano-substituent allows for the reversible n-doping of the polymer. Thus, the band gap E_g was measured using electrochem. techniques and compared with that obtained by UV-visible-NIR spectroscopy. Based on the measured band gap of 1.87 and 1.58 eV, these polymers appear

to be interesting candidates for solar-cell applications.

IT **497258-14-7P**

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode)

RN 497258-14-7 ZCAPLUS

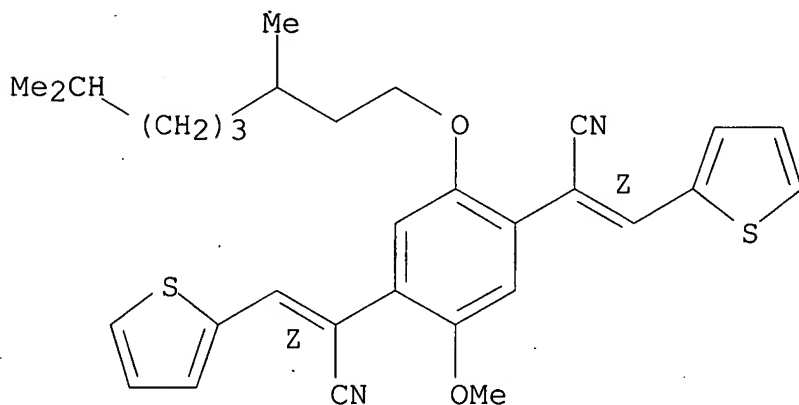
CN 1,4-Benzenediacetonitrile, 2-[(3,7-dimethyloctyl)oxy]-5-methoxy-.alpha.,.alpha.'-bis(2-thienylmethylene)-, (.alpha.Z,.alpha.'Z)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 497258-10-3

CMF C31 H34 N2 O2 S2

Double bond geometry as shown.



IT **497258-15-8P**

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode; produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode)

RN 497258-15-8 ZCAPLUS

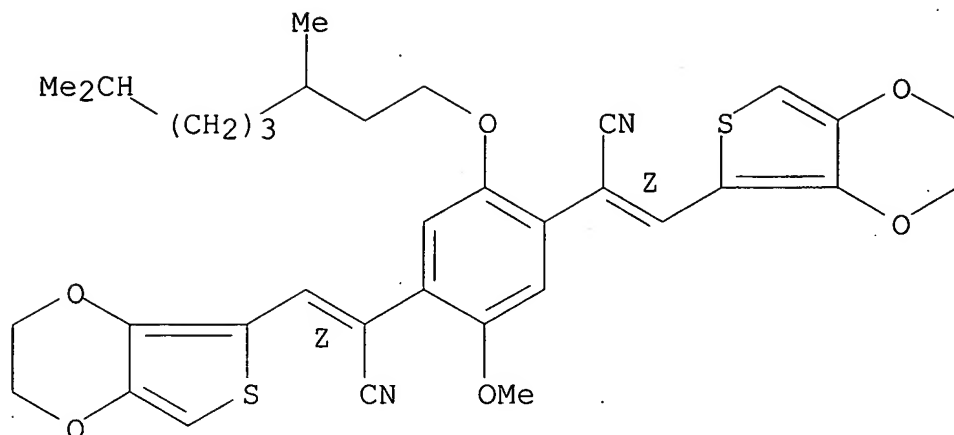
CN 1,4-Benzenediacetonitrile, .alpha.,.alpha.'-bis[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-2-[(3,7-dimethyloctyl)oxy]-5-methoxy-, (.alpha.Z,.alpha.'Z)-, homopolymer. (9CI) (CA INDEX NAME)

CM 1

CRN 497258-12-5

CMF C35 H38 N2 O6 S2

Double bond geometry as shown.



IT 497258-14-7P

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode)

IT 497258-15-8P

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode; produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode)

L16 ANSWER 4 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN

2000:521376 Document No. 133:208257 Main-chain syndioregic nonlinear optical polymers. II. Extended π conjugation and improved thermal properties. Stenger-Smith, J. D.; Zarras, P.; Hollins, R. A.; Chafin, A. P.; Merwin, L. H.; Yee, R.; Lindsay, G. A.; Herman, W. N.; Gratz, R. F.; Nickel, E. G. (Research and Technology Office, Code 4T4200D, NAWCWD, China Lake, CA, 93555, USA). Journal of Polymer Science, Part A: Polymer Chemistry, 38(15), 2824-2839 (English) 2000. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..

AB The synthesis of new main-chain syndioregic nonlinear optical polymers are presented. In particular, the synthesis of polymers with extended pi conjugation in the chromophore and chromophores with improved thermal stability are presented. The nonlinear optical coeff. of several of the polymers and the optical loss at 1.3 and 1.55 .mu.m were measured and discussed.

IT 290829-98-0P 290830-01-2P

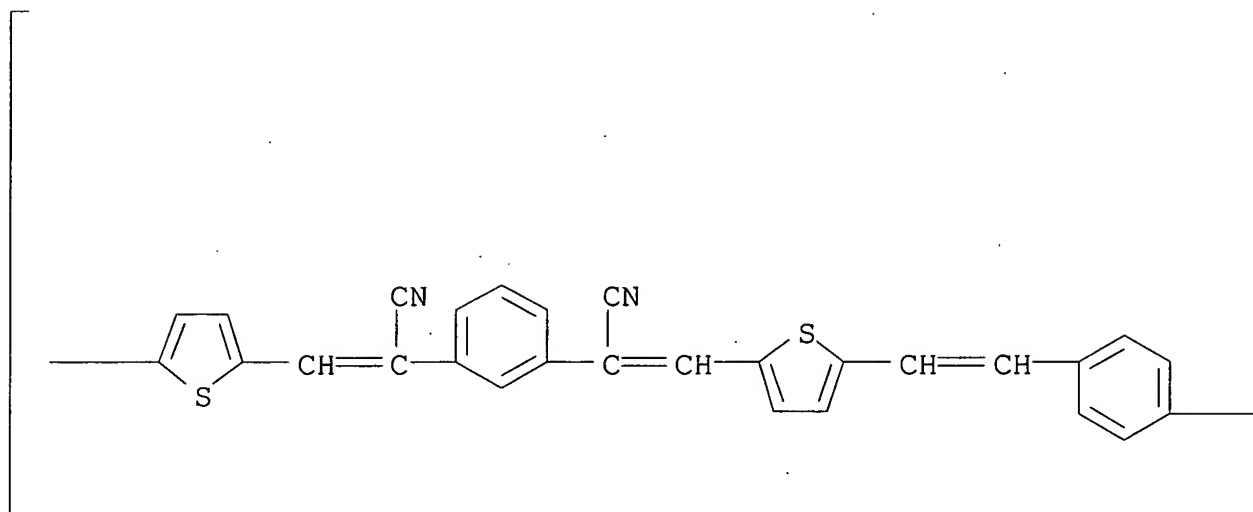
(prepn. and properties of main-chain syndioregic nonlinear optical polymers with extended π conjugation and improved thermal properties)

RN 290829-98-0 ZCAPLUS

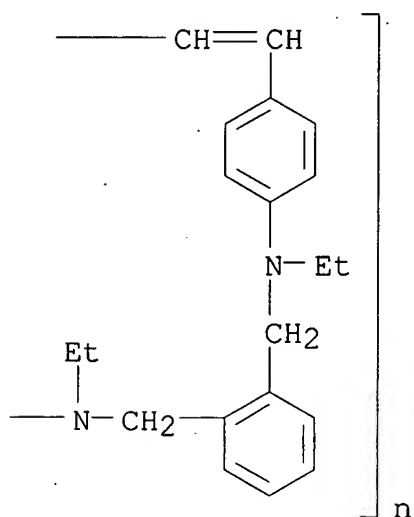
CN Poly[2,5-thiophenediyl(2-cyano-1,2-ethenediyl)-1,3-phenylene(1-cyano-1,2-ethenediyl)-2,5-thiophenediyl-1,2-ethenediyl-1,4-phenylene(ethylimino)methylene-1,2-phenylenemethylene(ethylimino)-

1,4-phenylene-1,2-ethenediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

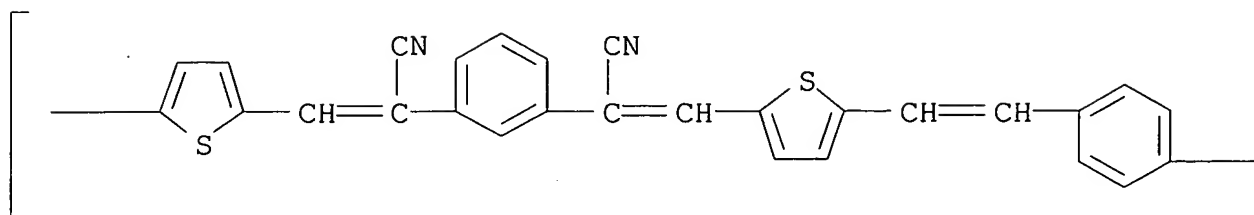


RN 290830-01-2 ZCAPLUS

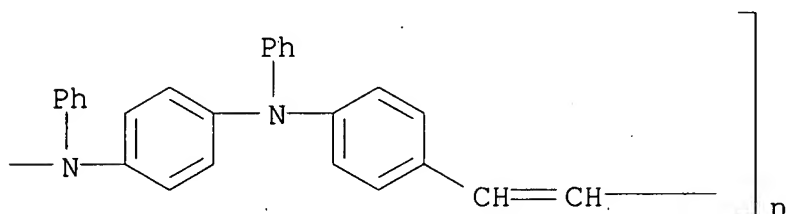
CN Poly[2,5-thiophenediyl(2-cyano-1,2-ethenediyl)-1,3-phenylene(1-cyano-1,2-ethenediyl)-2,5-thiophenediyl-1,2-ethenediyl-1,4-phenylene(phenylimino)-1,4-phenylene(phenylimino)-1,4-phenylene-1,2-

ethenediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 290829-98-0P 290830-01-2P

(prepn. and properties of main-chain syndioregic nonlinear optical polymers with extended π conjugation and improved thermal properties)

L16 ANSWER 5 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN

1999:405805 Document No. 131:93891 Anodic oxidation of various arylene-cyanovinyls made of alternating fluorenyl, thienyl and/or phenyl units. Rault-Berthelot, J.; Roze, C.; Granger, M. M.; Raoult, E. (Avenue du General Leclerc, Campus de Beaulieu, Unite Mixte de Recherche du CNRS no. 6510 Laboratoire d'Electrochimie Moleculaire et Macromoleculaire, Universite de Rennes I, Rennes, 35042, Fr.). Journal of Electroanalytical Chemistry, 466(2), 144-154 (English) 1999. CODEN: JECHE. ISSN: 0368-1874. Publisher: Elsevier Science S.A..

AB Anodic oxidn. of various arylenevinyls made of alternating fluorenyl, thienyl and Ph units substituted by a cyano group at the ethylene linkage are presented with the electrochem. behavior of the polymers when these oxidns. lead to insol. material.

IT 229311-27-7P

(formation in oxidn. of corresponding diarylcianoethylene).

RN 229311-27-7 ZCAPLUS

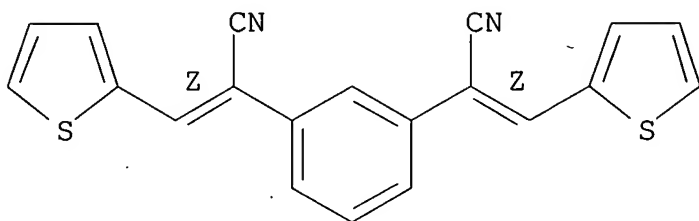
CN 1,3-Benzenediacetonitrile, .alpha.,.alpha.'-bis(2-thienylmethylene)-, (.alpha.Z,.alpha.'Z)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 229311-12-0

CMF C20 H12 N2 S2

Double bond geometry as shown.

IT **229311-21-1P 229311-23-3P 229311-24-4P**

(formation in redn. of corresponding diarylcynoethylene)

RN 229311-21-1 ZCAPLUS

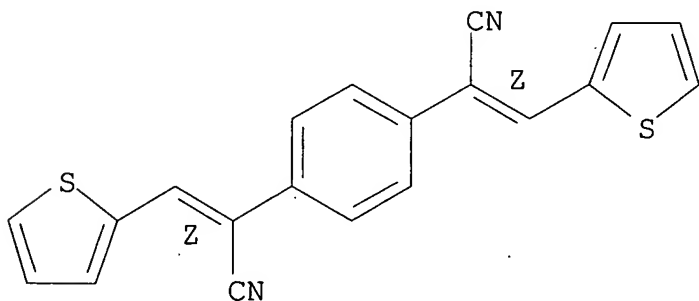
CN 1,4-Benzenediacetonitrile, .alpha.,.alpha.'-bis(2-thienylmethylene)-, (.alpha.Z,.alpha.'Z)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 229311-11-9

CMF C20 H12 N2 S2

Double bond geometry as shown.



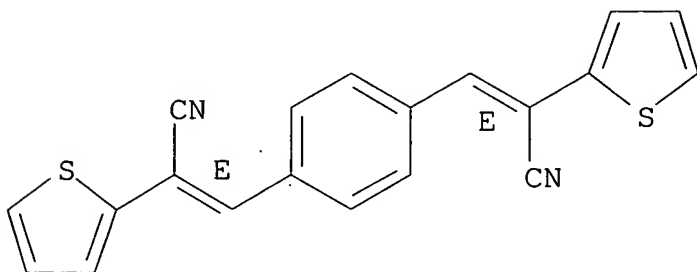
RN 229311-23-3 ZCAPLUS

CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-(1,4-phenylenedimethyldiynylidene)bis-, (.alpha.E,.alpha.'E)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 229311-15-3
 CMF C20 H12 N2 S2

Double bond geometry as shown.

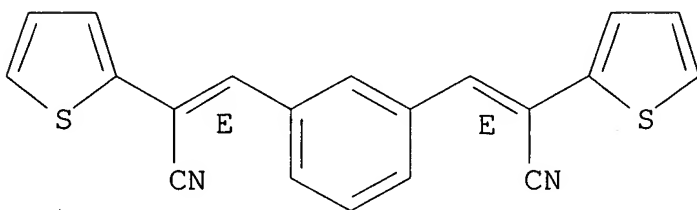


RN 229311-24-4 ZCAPLUS
 CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-(1,3-phenylenedimethylidyne)bis-, (.alpha.E,.alpha.'E)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 229311-16-4
 CMF C20 H12 N2 S2

Double bond geometry as shown.



IT **229311-27-7P**
 (formation in oxidn. of corresponding diarylcynoethylene)
 IT **229311-21-1P 229311-23-3P 229311-24-4P**
 (formation in redn. of corresponding diarylcynoethylene)

L16 ANSWER 6 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN
 1998:446990 Document No. 129:109383 Electropolymerization of
 Bis(2-cyano-2-.alpha.-thienylethenyl)arylenes. Lin, Shi-Chun; Chen,
 Jau-An; Liu, Mao-Huang; Su, Y. Oliver; Leung, Man-kit (Department of
 Chemistry, National Taiwan University, Taipei, Taiwan). Journal of
 Organic Chemistry, 63(15), 5059-5063 (English) 1998. CODEN: JOCEAH.
 ISSN: 0022-3263. Publisher: American Chemical Society.

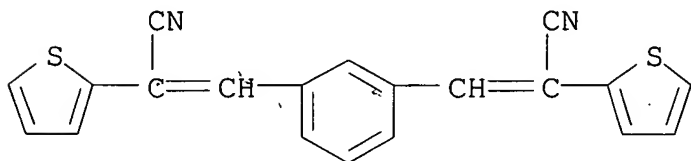
AB The synthesis and electrochem. studies of 1,3-bis(2-cyano-2-.alpha.-

thienylethenyl)benzene (1), 1,4-bis(2-cyano-2-.alpha.-thienylethenyl)benzene (2), and 2,7-bis(2-cyano-2-.alpha.-thienylethenyl)biphenylene (3) were carried out. While compd. 2 could be reversibly reduced to form the corresponding dianion, compds. 1 and 3 show irreversible or quasi-reversible redn. in the cyclic voltammogram. The high reactivity of the dianions of 1 and 3 is attributed to their di-radicaloid behavior. This explanation is further supported by PM3/RHF-PM3/UHF calcns. Compds. 1-3 could be irreversibly oxidized at the potential more pos. than +1.3 V. Among these compds., 3 shows the highest reactivity toward oxidative electropolymerization. The resulting polymer film is relatively stable and electroactive. Although polymeric films of compds. 1 and 2 could be formed at higher monomer concns., the films were unstable toward electrochem. oxidn. UV-vis analyses of the polymeric films reveal that electropolymerization of 2 is quenched at the early stage of the polymerization, resulting in significant amounts of oligomers in the matrix. However, biphenylene containing monomer 3 could be smoothly converted to highly conjugated polymers under electrochem. oxidation.

IT **209964-70-5P**, 1,3-Bis(2-cyano-2-.alpha.-thienylethenyl)benzene homopolymer **209964-71-6P**,
 1,4-Bis(2-cyano-2-.alpha.-thienylethenyl)benzene homopolymer
209964-72-7P, 2,7-Bis(2-cyano-2-.alpha.-thienylethenyl)biphenylene homopolymer
 (prepn. and redox electrochem. of bis(2-cyano-2-.alpha.-thienylethenyl)arylene conjugated polymers)
 RN 209964-70-5 ZCAPLUS
 CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-(1,3-phenylenedimethylidyne)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

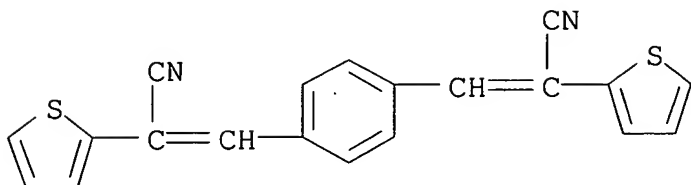
CRN 209964-66-9
 CMF C20 H12 N2 S2



RN 209964-71-6 ZCAPLUS
 CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-(1,4-phenylenedimethylidyne)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

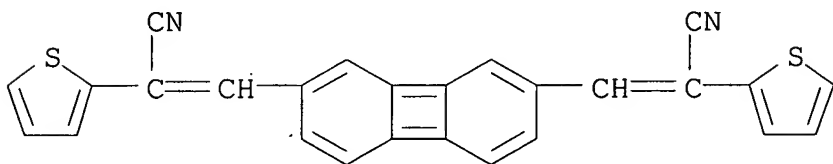
CRN 209964-67-0
CMF C20 H12 N2 S2



RN 209964-72-7 ZCAPLUS
CN 2-Thiopheneacetonitrile, .alpha.,.alpha.'-(2,7-biphenylenediylldimethylidyne)bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 209964-68-1
CMF C26 H14 N2 S2



IT **209964-70-5P**, 1,3-Bis(2-cyano-2-.alpha.-thienylethenyl)benzene homopolymer **209964-71-6P**, 1,4-Bis(2-cyano-2-.alpha.-thienylethenyl)benzene homopolymer **209964-72-7P**, 2,7-Bis(2-cyano-2-.alpha.-thienylethenyl)biphenylene homopolymer (prepn. and redox electrochem. of bis(2-cyano-2-.alpha.-thienylethenyl)arylene conjugated polymers)

L16 ANSWER 7 OF 7 ZCAPLUS COPYRIGHT 2005 ACS on STN
1996:235309 Document No. 124:290440 Synthesis of new conjugated thiophene polymers. Cervini, R.; Holmes, A. B.; Moratti, S. C.; Koehler, A.; Friend, R. H. (University Chemical Laboratory, Lensfield Road, Cambridge, CB2 1EW, UK). Synthetic Metals, 76(1-3), 169-71 (English) 1996. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB The synthesis, characterization and photoluminescence were studied of conjugated copolymers which incorporate fused thiophene units. Such materials possess intense purple-red colors and some absorb in

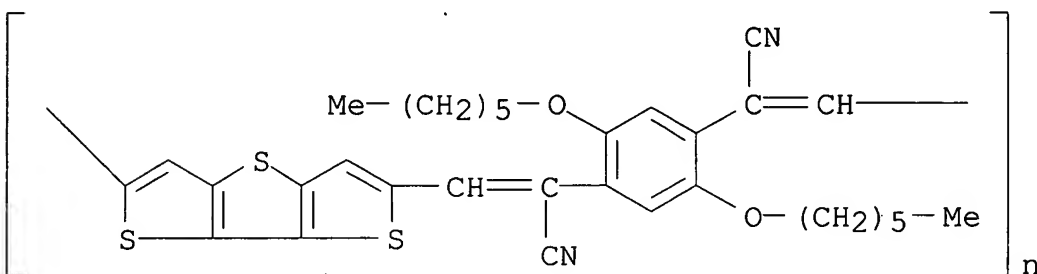
the near-IR. The redox processes showed that the polymers were both p- and n-dopable.

IT **175861-73-1P**

(prepn. and characterization of polymers contg. fused thiophene units)

RN 175861-73-1 ZCAPLUS

CN Poly[dithieno[3,2-b:2',3'-d]thiophene-2,6-diyl(2-cyano-1,2-ethenediyl)[2,5-bis(hexyloxy)-1,4-phenylene](1-cyano-1,2-ethenediyl)] (9CI) (CA INDEX NAME)



IT **175861-73-1P**

(prepn. and characterization of polymers contg. fused thiophene units)